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| Journal Name: | [Asian Basic and Applied Research Journal](https://jofresearch.com/index.php/ABAARJ) |
| Manuscript Number: | **Ms\_ABAARJ\_1869** |
| Title of the Manuscript: | **THE** **IMPLEMENTATION** **OF** **STOCHASTIC** **MODEL** **TO** **THE** **STUDY** **OF** **BREAST** **CANCER** **IN** **RIVERS** **STATE** **OF** **NIGERIA.** |
| Type of the Article | **Research** **Article** |

PART 1: Comments

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|  | **Reviewer’s** **comment**  **Artificial** **Intelligence** **(AI)** **generated** **or** **assisted** **review** **comments** **are** **strictly** **prohibited** **during** **peer** **review.** | **Author’s** **Feedback** *(Please* *correct* *the* *manuscript* *and* *highlight* *that* *part* *in* *the* *manuscript.* *It* *is* *mandatory* *that* *authors* *should* *write* *his/her* *feedback* *here)* |
| **Please** **write** **a** **few** **sentences** **regarding** **the** **importance** **of** **this** **manuscript** **for** **the** **scientific** **community.** **A** **minimum** **of** **3-4** **sentences** **may** **be** **required** **for** **this** **part.** | **This** **manuscript** **is** **deemed** **relevant** **to** **the** **scientific** **community** **as** **it** **applies** **a** **stochastic** **model** **to** **analyse** **breast** **cancer** **trends** **in** **a** **specific** **region** **of** **Nigeria.**  **Based** **on** **the** **data** **presented,** **patterns** **in** **cancer** **progression** **are** **identified** **across** **different** **age** **groups,** **with** **future** **predictions.**  **The** **study's** **use** **of** **transition** **matrices** **and** **probability** **models** **provides** **a** **quantitative** **framework** **for** **understanding** **how** **breast** **cancer** **affects** **different** **demographic** **groups** **over** **time.** **This** **information** **is** **important** **for** **public** **health** **planning** **and** **policymaking.**  **The** **research** **highlights** **regional** **disparities** **in** **breast** **cancer** **incidence** **and** **survival** **rates,** **addressing** **factors** **such** **as** **late** **diagnosis,** **accessibility** **to** **healthcare,** **and** **risk** **factors.**  **The** **findings** **emphasize** **the** **importance** **of** **early** **detection,** **lifestyle** **modifications,** **and** **improved** **health** **interventions** **to** **reduce** **mortality** **rates.** **By** **offering** **a** **predictive** **model,** **this** **study** **not** **only** **enriches**  **scientific** **knowledge** **but** **also** **provides** **practical** **information** **that** **could** **help** **define** **targeted** **interventions** **and** **improve** **cancer** **care** **strategies** **in** **developing** **regions.** |  |
| **Is** **the** **title** **of** **the** **article** **suitable?**  **(If** **not** **please** **suggest** **an** **alternative** **title)** | **The** **title** **is** **relevant;** **however,** **I** **would** **suggest** **this** **one:** **"Predicting** **Breast** **Cancer** **Trends** **in** **Rivers** **State,** **Nigeria** **Using** **a** **Stochastic** **Model."** **The** **title** **is** **clearer** **and** **easier** **to** **understand** **for** **a** **wider** **audience.** |  |

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| **Is** **the** **abstract** **of** **the** **article** **comprehensive?** **Do** **you** **suggest** **the** **addition** **(or** **deletion)** **of** **some** **points** **in** **this** **section?** **Please** **write** **your** **suggestions** **here.** | **The** **abstract** **presents** **a** **clear** **overview** **of** **the** **application** **of** **a** **stochastic** **model** **to** **breast** **cancer** **data** **in** **Rivers** **State,** **Nigeria.** **It** **highlights** **the** **use** **of** **transition** **matrices** **and** **probability** **models** **to** **analyse** **cancer** **progression** **and** **predict** **future** **trends.** **It** **also** **mentions** **important** **findings** **of** **the** **study,** **such** **as** **the** **increase** **in** **breast** **cancer** **cases** **over** **time** **and** **the** **identification** **of** **high-risk** **age** **groups.** **However,** **several** **improvements** **are** **suggested** **for** **the** **abstract.**   * **It** **is** **recommended** **that** **the** **research** **objectives** **be** **clarified** **from** **the** **outset** **to** **facilitate** **understanding** **of** **the** **study.** * **It** **is** **suggested** **that** **the** **methodology** **be** **expanded,** **providing** **more** **detail** **on** **the** **application** **and** **validation** **of** **the** **model.** * **It** **is** **suggested** **that** **the** **most** **relevant** **findings** **be** **highlighted** **more** **clearly,** **specifying** **rates** **of** **increase** **and** **relevant** **statistics.** * **It** **is** **suggested** **that** **the** **practical** **implications** **of** **the** **findings** **be** **discussed.** |  |
| **Is** **the** **manuscript** **scientifically,** **correct?** **Please** **write** **here.** | The article presents a scientifically sound application of a stochastic model to analyse breast cancer trends. It uses transition matrices and probability models, which are well-established mathematical tools for modeling dynamic processes such as disease progression.  However, to ensure the scientific accuracy and rigor of the study, several aspects must be reviewed. First, the mathematical model needs to be validated, providing a fit analysis or comparisons with other approaches. It is also suggested that the statistical significance of the findings be clarified, ensuring that statistical tests were used. Furthermore, it would be useful to discuss the representativeness of the sample size of 568 cases analysed and address potential sampling biases.  Finally, although the study identifies at-risk age groups, it lacks a more in-depth analysis of biological and environmental factors that influence cancer rates, as well as additional and recent citations, because most are older than 5 years, to support the claims made. |  |
| **Are** **the** **references** **sufficient** **and** **recent?** **If** **you** **have** **suggestions** **of** **additional** **references,** **please** **mention** **them** **in** **the** **review** **form.** | The manuscript includes a reasonable number of bibliographic references that, while covering various aspects of breast cancer epidemiology, risk factors, and statistical modeling, are outdated sources and do not comply with APA format. The following is suggested:   1. More recent references: Some cited studies are more than a decade old; this does not reflect the latest advances in cancer modeling, screening, and treatment. It should be noted that given the rapid evolution of medical research and stochastic modeling, it is prudent to include studies from the last 5 to 7 years. Example: The most recent WHO World Cancer Report (2024) could be cited to update epidemiological trends. 2. Limited citations to stochastic modeling in cancer research: Although the article applies a stochastic model, it lacks citations to previous applications of Markov models in disease modeling. Adding references to similar studies would validate the approach. |  |
| **Is** **the** **language/English** **quality** **of** **the** **article** **suitable** **for** **scholarly** **communications?** | The manuscript demonstrates a good command of academic writing with correct scientific terminology, but there are areas where the language could be improved, providing clarity, coherence, and readability for scholarly communication. The following are suggested for improving the manuscript:   1. Some sentences are too long or complex, making them difficult to read. Simplifying the sentence structure and improving punctuation would improve clarity. 2. Inconsistent use of verb tenses: The manuscript occasionally alternates between the past and present tense. Maintain a consistent tense, especially when describing the methodology and findings. 3. Word choice and redundancies: Some phrases are repetitive or could be more concise. 4. Academic precision: Certain phrases lack specificity, which requires clearly defining terms, avoiding vague expressions, and improving transitions between sections. |  |
| **Optional/General** comments |  |  |

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| **PART 2:** | | |
|  | **Reviewer’s comment** | **Author’s comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)* |
| **Are there ethical issues in this manuscript?** | *(If yes, Kindly please write down the ethical issues here in details)* |  |

**Reviewer details:**

**Jairo Eduardo Marquez Diaz, Cundinamarca University, Colombia**